



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6

1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

ATTACHMENT NOT INCLUDED

MEMORANDUM

SUBJECT: Request for a Removal Action at the Little Bit Rad Site, Beaumont, Jefferson County, Texas

FROM: *Patrick L. Hammack*
Patrick L. Hammack, Senior On-Scene Coordinator (6SF-R1)

TO: *Myron Knudson*
Myron Knudson, P.E., Director
Superfund Division (6SF)

THRU: *Charles A. Gazda*
Charles A. Gazda, Chief
Response and Prevention Branch (6SF-R)

I. PURPOSE

This memorandum requests approval for a Removal Action pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended, 42 U.S.C. § 9604, *et seq.*, at the Little Bit Rad Site (Site) located in Beaumont, Jefferson County, Texas. The Site consists of the property where the Little Bit Wireline Services maintained a storage area for radioactive sources. The proposed action involves the excavation and off-site disposal of americium-241 contaminated soil and debris and the subsequent restoration of the property.

This action meets the criteria for initiating a removal action under the National Contingency Plan (NCP), 40 CFR § 300.415. This action is expected to require less than twelve months and less than two million dollars to complete.

151725



II. SITE CONDITIONS AND BACKGROUND

CERCLIS # TX0000605291

Category of removal: Time-Critical

Site ID # JD

A. Site Description

1. Removal site evaluation

The Little Bit Rad Site consists of a small storage building located on a corner lot in a residential area of Beaumont, Jefferson County, Texas (Attachment 1). In 1995, the owner of the storage shed placed a broken 3 curie americium-241/beryllium source in the shed, contaminating the area. The source has subsequently been removed leaving the residual contamination. A confounding variable is the presence of beryllium on the site. We have no analytical information confirming its presence due to the high radioactivity in the shed, but it is presumed to be inside the building in small quantities. If beryllium is present, it could pose additional considerations during cleanup. The site is immediately adjacent to a residential neighborhood and is completely surrounded by occupied homes. The site was brought to the attention of the Environmental Protection Agency (EPA) Response and Prevention Branch (RPB) by the Texas Department of Health (TDH) in a telephone conversation between Mr. Bob Free and the On-Scene Coordinator (OSC), Pat Hammack, in March 2000.

2. Physical location

The Site is located at 715 Sunnyside Drive, Beaumont, Texas at the intersection of Forsythe and Sunnyside. The rough boundary of the Site consists of a fenced 5000 square foot area. The site is immediately adjacent to a residential neighborhood and is completely surrounded by occupied homes.

3. Site characteristics

The Little Bit Rad Site was used as a source storage area for the Little Bit Wireline Services company. It is a small building with residual internal and external contamination. The Little Bit Rad Site became contaminated when the operator stored a broken 3 curie americium-241 source that leaked the residual radiation and contaminated the site in 1995.

As a result of the improper storage operations performed at the site, wide-spread americium-241 soil contamination has been confirmed on the property. The official site area is fenced, but the contamination could migrate offsite with wind and rain and therefore unrestricted access to the public is possible.

In March 2000, U.S. EPA investigations were conducted to determine exposure levels associated with radiation at the site. Exposure and dose measurements were made using a Ludlum Model 43-89 Alpha Scintillation Probe and a Berkeley Nucleonics portable multichannel

analyzer Model SAM-335 with a 3 inch by 3 inch sodium iodide detector. The gamma radiation survey indicated areas in excess of 2000 micro roentgen per hour (uR/hr). National background concentrations in an uncontaminated area should have gamma readings between 10-15 uR/hr. Soil investigation at the site has indicated wide-spread americium-241 contamination within surface and subsurface soils onsite.

4. Releases or threatened release into the environment of a hazardous substance, pollutant or contaminant

Releases of americium-241 have contaminated the 5000 square foot area of residential property within Beaumont, Texas. Americium-241 is a radionuclide which is a listed hazardous substance as defined at Section 101(14) of CERCLA, 42 U.S.C. § 9601(14) and further defined at 40 CFR § 302.4.

5. NPL status

This Site is not presently on the National Priorities List (NPL). The State of Texas conducted an assessment at the site and due to the limited waste quantity, the small size of the facility, and limited targets, the site was removed from consideration for NPL ranking. However, should the site be ranked on the NPL in the future, the current removal actions are consistent with any remedial cleanup that might be taken due to the fact that the proposed actions constitute source removal measures.

6. Maps, Pictures and other graphic representations

Attachment 1: Site sketch & Site location map

Attachment 2: Oil & Hazardous Materials/Technical Assistance Database (OHM/TADS)
Material Safety Data Sheets (MSDS) for Americium-241 and Beryllium

Attachment 3: State Letter Requesting Assistance

Attachment 4: Enforcement Addendum

B. Other Actions to Date

1. Previous actions

Previous actions taken by or directed by the State are listed below. EPA has taken no previous response actions at the Site.

2. Current actions

There are currently no actions taking place on the Site.

C. State and Local Authorities' Roles

1. State and local actions to date

The facility has been investigated by the TDH Bureau of Radiation Control since the broken source was stored at the location in 1995. After failed attempts to have the potentially responsible parties (PRP) clean the site, the TDH requested the EPA take over the site for final mitigation of the threat.

2. Potential for continued State/local response

In a April 25, 2000 letter to Charlie Gazda and Ragan Broyles, the Texas Natural Resource Conservation Commission (TNRCC) requested EPA assistance in the evaluation and possible response action associated with contamination at the Little Bit Rad Site. Additional response is expected by State and/or local officials at the site in the form of monitoring the site, technical assistance during the removal and community relations efforts (Attachment 3).

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

The current conditions at the Site meet the following factors listed in Section 300.415(b)(2) of the National Contingency Plan, 40 CFR § 300.415(b)(2), which indicate that the Site is a threat to the public health, welfare and the environment and a removal action is appropriate under Section 300.415(b)(1) of the National Contingency Plan, 40 CFR § 300.415(b)(1). Any or all of these factors may be present at a site yet any one of these factors may determine the appropriateness of a removal action.

1. Exposure to Human Populations, Animals or the Food Chain, NCP Section 300.415(b)(2)(i)

There is potential for exposure to human populations as a result of americium-241 contamination at the Little Bit Rad Site. Americium-241 is a radionuclide that emits ionizing radiation and has a half-life of 432 years. Ionizing radiation has the potential for being a carcinogen, mutagen, and/or teratogen, according to the Oil and Hazardous Materials/Technical Assistance Database (Attachment 2). Exposure of reproductive cells to ionizing radiation can cause gene mutations to occur in excess of the spontaneous mutation rate. Developmental defects have been observed in experimental animals exposed to ionizing radiation.

Human exposure can occur by one or more of the following mechanisms: 1) whole body tissue exposure from penetrating gamma radiation; 2) lung tissue exposure from alpha-particles due to the inhalation of americium-241 contaminated dust; and 3) digestive tract tissue exposure due to ingestion of americium-241 contaminated soil. Gamma radiation levels at the site have been found at over 2000 uR/hr, nearly 200 times background gamma radiation levels.

2. Contaminants in Soils, NCP Section 300.415(b)(2)(iv)

Elevated levels of americium-241 are located in surface soils throughout the site. Gamma radiation exposure can occur just by being in close proximity of the contaminated soils. Additionally, americium-241/beryllium contaminated dust may be incidentally inhaled and/or ingested by humans especially with the hand-to-mouth behavior of young children playing in the contaminated residential lot. Americium-241/beryllium contaminated soil can be tracked away from the site by animals enhancing the possibility of spreading the contamination to the human population.

3. Weather Conditions That May Cause the Release or Migration of Hazardous Substances, NCP Section 300.415 (b)(2)(v)

There is the potential of wind-borne migration of the dust containing elevated americium-241/beryllium concentrations. Texas is known for its windy and dusty conditions which can accelerate contaminant migration. Even though the external contamination has "weathered in" at this location there is still a potential threat of resuspension and transport of contamination offsite. Additional risk arises from the possibility of a structure fire. All or most of the contamination that is currently contained inside the building could become re-suspended and dispersed far beyond the current bounds of the site due to the normal high winds in the area.

4. Availability of Other Mechanisms, NCP Section 300.415 (b)(2)(vii)

The Potentially Responsible Party (PRP) was investigated by the State and was found not to have the resources to handle the removal. The EPA will follow up on the investigation to see if the PRP can perform the described action. The State and local officials do not have the resources available to address the current situation. The EPA will be the only mechanism available to respond to the imminent and substantial endangerment posed by the hazardous substances located at the site. If other mechanisms become available during the response action, the EPA will evaluate those mechanisms as appropriate.

B. Threats to the Environment

There are no known threats to the environment relative to the elevated hazardous substances located in at the site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances, pollutants or contaminants from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to the public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

As discussed below, all of the actions to be taken on-site during this removal will comply with all applicable, or relevant and appropriate requirements (ARARs) to the extent practicable, considering the exigencies of the situation, and provide an effective mitigation of the imminent and substantial threats posed to the public health by the Site.

The proposed action involves the excavation and off-site disposal of all contaminated soil and building materials. All excavated areas will be backfilled with clean soil and brought back as close to their original contour and grade as practical. Clean soil is considered void of contaminants above background levels and will not constitute a health threat if used in a residential play area. Ground cover will be provided to the clean backfill area to stabilize the soil and prevent erosion.

Off-site disposal will be accomplished by sending all radioactive contaminated soils to an appropriate disposal facility. All hazardous substances, pollutants or contaminants removed off-site pursuant to this action for treatment, storage, or disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by EPA, pursuant to CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and the following rule: "Amendment to the National Oil and Hazardous Substances Pollution Contingency Plan; Procedures for Planning and Implementing Off-Site Response Action: Final Rule" 58 FR 49200 (September 22, 1993), and codified at 40 CFR § 300.440.

All containers to be sent off-site for disposal will be packaged and labeled in accordance with RCRA requirements found at 40 CFR §§ 262.30-32 and will be properly manifested in accordance with the requirements in 40 CFR §§ 262.20-23. All transportation will be in accordance with Department of Transportation rules and regulations. See generally 40 CFR§263.

Other requirements under the Occupational Safety and Health Act (OSHA) of 1970, 29 U.S.C. § 651 et seq., and under the laws of the State with plans approved under Section 18 of the State's OSHA laws, as well as other applicable safety and health requirements, will be followed. Federal OSHA requirements include, among other things, Hazardous Materials Operation, 20 CFR Part 1910, as amended by 54 Fed. Reg. 9317 (March, 1989), all OSHA General Industry (29 CFR Part 1910) and Construction (29 CFR Part 1926) standards wherever they are relevant, as well as OSHA record keeping and reporting regulations, and the EPA regulations set forth in 40 CFR Part 300, relating to the conduct of work at Superfund sites.

2. Contribution to remedial performance

The proposed action will eliminate the source material and is expected to complete all necessary actions at the Site.

3. Description of alternative technologies

There are no alternative technologies which could apply.

4. Applicable or relevant and appropriate requirements

The proposed removal action will be conducted to eliminate the actual or potential exposure to hazardous substances, pollutants or contaminants pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9601 *et seq.*, and in a manner consistent with the National Contingency Plan, 40 CFR Part 300, as required at 33 U.S.C. § 1321(c)(2) and 42 U.S.C. § 9605. As per 40 CFR Part 300.415(j), fund-financed removal actions under CERCLA § 106 shall, to the extent practicable considering the exigencies of the situation, attain the applicable or relevant and appropriate requirements under Federal environmental law.

Due to the fact that consolidation and off-site disposal are the principal elements of this removal action, RCRA waste analysis requirements found at 40 CFR §§ 261.20 and 261.30, RCRA manifesting requirements found at 40 CFR § 262.20, and RCRA packaging and labeling requirements found at 40 CFR § 262.30, are deemed to be appropriate requirements for this removal action. Ambient air quality standards at 40 CFR 50 will be used, as applicable, to protect the quality of air during the implementation of the action.

There are no regulatory cleanup standards directly applicable to the site. The site cleanup level for both the residential and commercial areas of the site are background.

5. Project Schedule

The project is expected to last approximately two months.

B. Estimated Costs

Extramural Costs

Cleanup Contractor.....	\$250,000
US Army Corps of Engineers.....	100,000
Technical Assistance Contractor.....	60,000
TOTAL, EXTRAMURAL COSTS.....	\$410,000

Intramural Costs

EPA Direct Costs.....	\$65,000
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EPA Indirect Costs.....\$120,000
TOTAL, INTRAMURAL COSTS.....\$285,000
20% Project Contingency.....\$135,000
TOTAL, REMOVAL PROJECT CEILING.....\$830,000

Cost estimates are based on special methods to clean up americium-241 and on the costs of preventing the spread of contamination to the neighborhood. Although lessons learned from previous actions have contributed to more efficient cleanup, other factors are rising costs.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If action is not taken at the Site, the residents and, in particular, the children playing in the yards will continue to be exposed to the gamma radiation and potentially americium-241 contaminated soil. As cited above, such exposure could possibly lead to adverse health effects including cancer.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues associated with this Site.

VIII. ENFORCEMENT

See Attachment 4.

IX. RECOMMENDATION

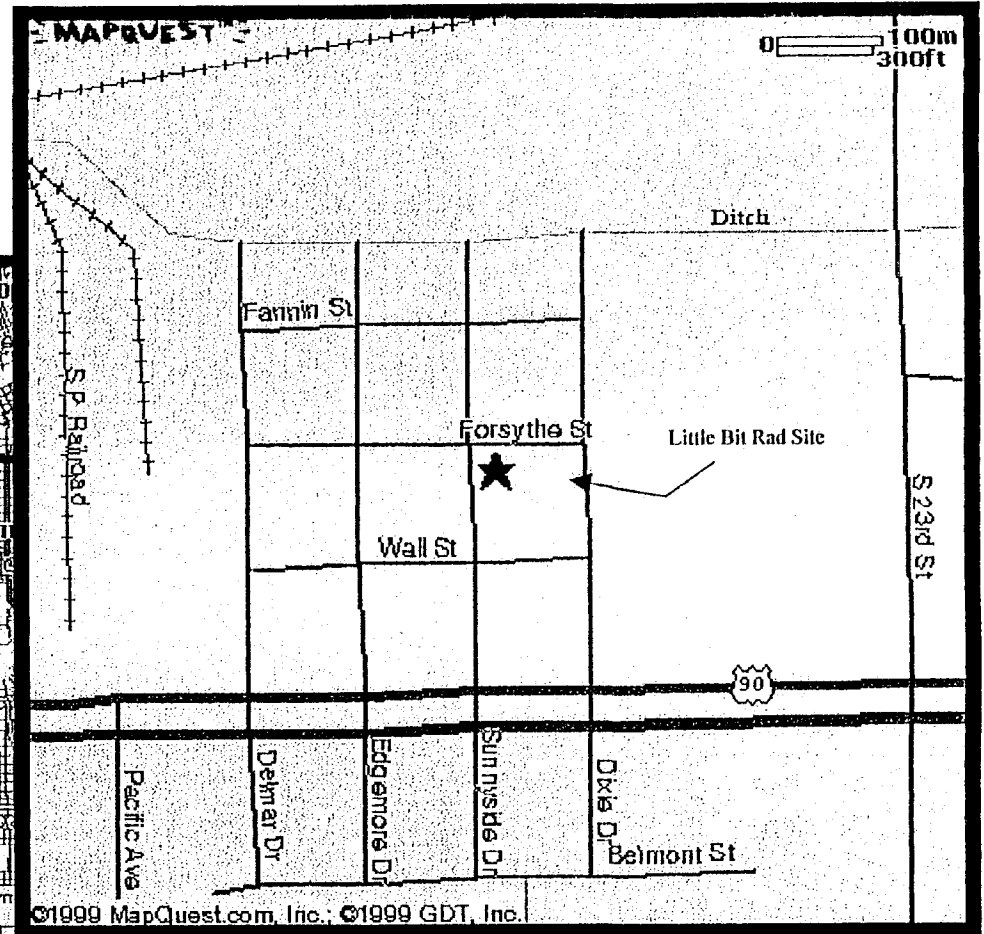
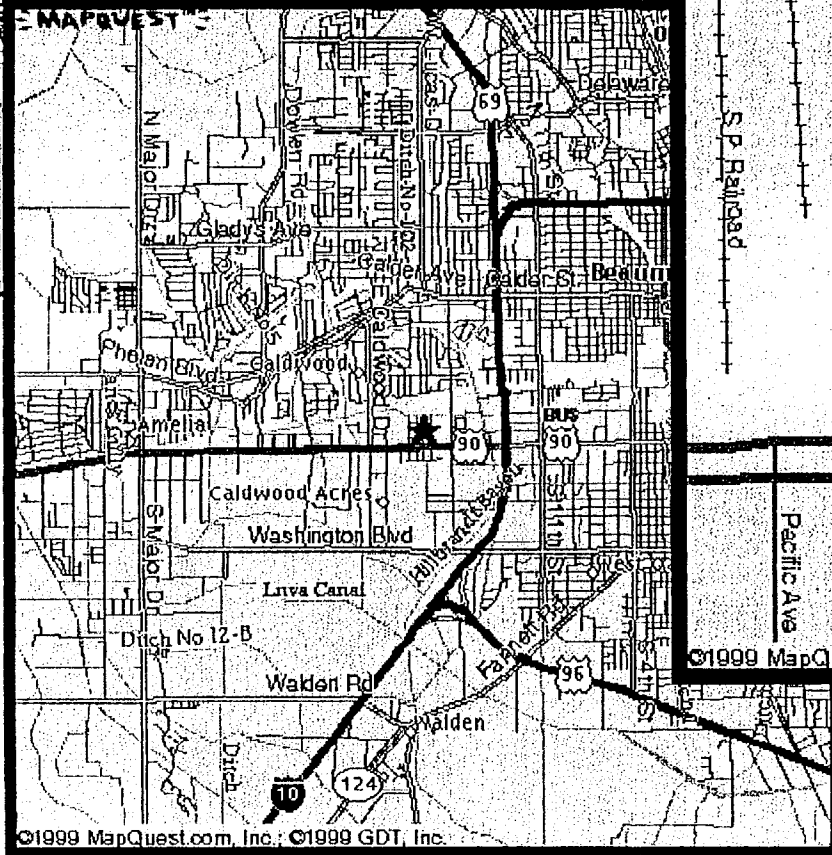
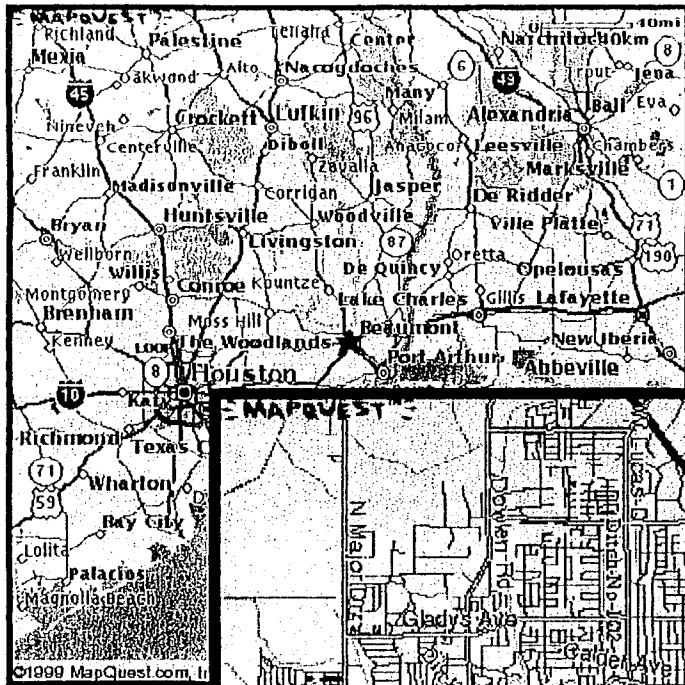
This decision document represents the selected removal action for the Little Bit Rad Site, in Beaumont, Jefferson County, Texas, developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the criteria as defined by 40 CFR Section 300.415(b)(2) of the NCP for a removal, and I recommend your approval of the proposed removal action. The total project ceiling is \$830,000. Of this amount, an estimated \$410,000 comes from the regional removal allowance.

APPROVED *Patricia Phillips Acting* DATE *8/3/2000*

DISAPPROVED _____ DATE _____

Attachment 1



Attachment 2

Oil and Hazardous
Materials/Technical Assistance Data
System

Americium-241

AMERICIUM 241

OHM/TADS - Oil and Hazardous Materials/Technical Assistance Data System

Developed by the Office of Water and Waste Management of the United States Environmental Protection Agency. 1985.

Document Outline

- 1.0 SUBSTANCES INCLUDED
- 3.0 TRANSPORT/STORAGE/HANDLING
- 4.0 LABORATORY
- 5.0 PHYSICOCHEMICAL PARAMETERS
- 6.0 FIRE/EXPLOSION/CORROSION HAZARDS
- 7.0 ENVIRONMENTAL HAZARDS
- 8.0 RANGE OF TOXICITY
- 9.0 HUMAN HEALTH HAZARDS
- 10.0 CLEANUP PROCEDURES
- 11.0 DATA ADEQUACY EVALUATION

SUBSTANCES INCLUDED

Material name: AMERICIUM 241

CAS number: 14596-10-2

Chemical formula: AM

Tradename(s):

Production sites: AMERSHAM/SEARLE CORP., ARLINGTON HGTS, IL; BIONUCLEAR, HOUSTON, TX; CAPINTEC NUCLEAR, MT; VERNON, NY; EBERLINE INSTRUMENT CORP., SANTA FE, N.M. GENERAL ELECTRIC CO. (IRRADIATION PROCESS. OP.), PLEASANTON, CA; GENERAL NUCLEAR, INC., HOUSTON, TX; HIGH VOLTAGE ENGINEERING CORP., BURLINGTON, MA; INTERNATIONAL CHEMICAL AND NUCLEAR CORP., IRVINE, CA; ISOTOPE PRODUCTS LABORATORIES, BURBANK, CA; MONSANTO RESEARCH CORP., DAYTON, OH; NATIONAL BUREAU OF STANDARDS, WA; DC; NEW ENGLAND NUCLEAR CORP., BOSTON, MA; NUCLEAR ASSOCIATES, INC., WESTBURY, NY; NUCLEAR EQUIPMENT CHEMICAL CORP., FARMINGDALE, NY; NUCLEAR MATERIALS AND EQUIPMENT CORP., PITTSBURGH, PA; NUCLEAR RADIATION DEVELOPMENTS, INC., BRAND ISLAND, NY; NUCLEAR SUPPLIES, ENCINO, CA; ORTEC, INC., OAK RIDGE, TN; PARKWELL LABORATORIES, INC., CROTON, OH; RADIATION MATERIALS CORP., WALTHAM, MA; SWISS FEDERAL INSTITUTE FOR REACTOR RESEARCH TELEDYNE ISOTOPIES, PALO ALTO, CA; TRACERLAB, WALTHAM, MA; UNIVERSAL RADIOISOTOPIES, INC., RICHMOND, CA.

TRANSPORT/STORAGE/HANDLING

Handling:

General handling procedures: CFR TRANSPORT GROUP 1 - TYPE A MAX QUANTITY .0001 CI AND TYPE B MAX QUANTITY 20 CI; TYPE A QUANTITY MAY BE PACKAGED FOR SHIPMENT VIA AIR, HIGHWAY, RAIL, AND WATER IN FIBERBOARD BOXES AND DRUMS, METAL DRUMS AND WOODEN BOXES; TYPE B QUANTITY IN METAL DRUM. THE TOTAL CONTENT OF RADIOACTIVE MATERIAL DOES NOT EXCEED .0001 CI PER DEVICE OR .001 CI PER PACKAGE FOR MANUFACTURED ARTICLES HAVING RADIOACTIVE MATERIALS OTHER THAN LIQUIDS IN NONDISPERSIBLE FORM.

LABORATORY

Field detection limits (ppm): 3.E-5, GAMMA, BNW,

Laboratory detection limits (ppm): LESS THAN MPC IN WATER, GROSS ALPHA AND GROSS BETA COUNTING SAMPLE MAY REQUIRE CONCENTRATION BY DISTILLATION OR OTHER MEANS, (BNW C16)

PHYSICOCHEMICAL PARAMETERS

Physical parameters:

Location/state of material: 1. PURE ELEMENT IS SILVERY IN APPEARANCE 2. ALL COMPOUNDS EXCEPT AMF3 ARE SOLUBLE IN WATER WILL DISSOLVE

Boiling point (degrees C): 26

FIRE/EXPLOSION/CORROSION HAZARDS

Fire hazard:

Standard codes: LABELS FOR PACKAGES OF RADIOACTIVE MATERIALS MUST BE OF DIAMOND SHAPE, IN COLORS SPECIFIED, WITH EACH SIDE AT LEAST 4 INCHES LONG. PRINTING MUST BE IN BLACK INSIDE A BLACK LINE BORDER MEASURING AT LEAST 3 1/2 INCHES ON EACH SIDE. "RADIOACTIVE WHITE-I" LABEL -- LABEL MUST BE WHITE IN COLOR. THE SINGLE VERTICAL BAR ON THE LOWER HALF OF THE LABEL MUST BE BRIGHT RED IN COLOR. LABELS MUST BE APPLIED ON TWO OPPOSITE SIDES OF EACH PACKAGE HAVING A DOSE RATE NOT EXCEEDING .5 MILLIREM PER HOUR AT ANY POINT ON THE EXTERNAL SURFACE OF THE PACKAGE. NOT AUTHORIZED FOR FISSILE CLASS II PACKAGES. "RADIOACTIVE YELLOW- II" LABEL -- THE UPPER HALF OF THE LABEL MUST BE BRIGHT YELLOW AND THE BOTTOM HALF MUST BE WHITE. THE TWO VERTICAL BARS ON THE LOWER HALF OF THE LABEL MUST BE BRIGHT RED IN COLOR. LABELS MUST BE APPLIED ON TWO OPPOSITE SIDES OF: A) EACH PACKAGE HAVING A DOSE RATE NOT EXCEEDING 10 MILLIREM PER HOUR AT ANY POINT ON THE EXTERNAL SURFACE OF THE PACKAGE AND NOT EXCEEDING .5 MILLIREM PER HOUR AT 3 FEET FROM THE EXTERNAL SURFACE OF THE PACKAGE; OR B) EACH PACKAGE FOR WHICH THE TRANSPORT INDEX DOES NOT EXCEED .5 AT ANY TIME DURING TRANSPORTATION. "RADIOACTIVE YELLOW-III" LABEL -- THE UPPER HALF OF THE LABEL MUST BE BRIGHT YELLOW AND THE BOTTOM HALF MUST BE WHITE. THE THREE VERTICAL BARS ON THE LOWER HALF OF THE LABEL MUST BE BRIGHT RED IN COLOR. LABELS MUST BE APPLIED ON TWO OPPOSITE SIDES OF: A) EACH PACKAGE HAVING A SURFACE DOSE RATE EXCEEDING 10 MILLIREM PER HOUR; B) EACH FISSILE CLASS III PACKAGE; C) EACH PACKAGE CONTAINING A LARGE QUANTITY OF RADIOACTIVE MATERIAL AS: 20 CURIES OF GROUP I RADIONUCLIDES, 20 CURIES OF GROUP II RADIONUCLIDES, 200 CURIES OF GROUP III RADIONUCLIDES, 200 CURIES OF GROUP IV RADIONUCLIDES, 5,000 CURIES OF GROUP V RADIONUCLIDES, 50,000 CURIES OF GROUP VI RADIONUCLIDES, 500,000 CURIES OF GROUP VII RADIONUCLIDES, OR 5,000 CURIES OF SPECIAL FORM RADIOACTIVE MATERIALS; OR D) EACH PACKAGE TRANSPORTED UNDER A SPECIAL PERMIT ISSUED IN RESPONSE TO A PETITION.

Toxic combustion products: RADIOACTIVE COMBUSTION PRODUCTS

Personnel protection: ALPHA, GAMMA RADIATION. DO NOT ALLOW CONTAMINATED WATER TO COME IN CONTACT WITH SKIN OR PERSONAL CLOTHING. WEAR WATERPROOF PROTECTION. IF THE RADIOACTIVITY IS ALSO AIRBORNE, A MASK WITH AIR FILTER MAY BE REQUIRED.

Explosion hazard:

Explosiveness: NONFISSIONABLE

ENVIRONMENTAL HAZARDS

Pollution hazard:

Water pollution:

Persistency: 458 YEAR RADIOACTIVE HALF-LIFE; 20,000 DAY BIOLOGICAL HALF-LIFE IN TOTAL BODY, 73000 DAYS IN BONE, 24000 DAYS IN KIDNEYS, AND 3000 DAYS IN LIVER

Effect on water treatment process: 1. POSSIBILITY OF BUILD-UP OF RADIOACTIVITY IN WATER TREATMENT SLUDGE OR FILTERS 2. POSSIBILITY OF BUILD-UP OF RADIOACTIVITY IN SEWAGE TREATMENT SLUDGE 3. POSSIBLE TOXIC EFFECT ON SEWAGE TREATMENT BACTERIA.

Water uses threatened: ALL WATER USES

Industrial fouling potential: THE SAFE RADIATION LEVELS ARE BELOW INDUSTRIAL FOULING POTENTIAL LEVELS.

Air pollution: RADIOACTIVE HIGH

Food chain:

Potential for accumulation: THE CONCENTRATION OF RADIONUCLIDES IN AQUATIC AND MARINE ORGANISMS IS GOVERNED BY THESE FACTORS: 1) THE PARTICULAR ELEMENT INVOLVED AND ITS PHYSIOLOGICAL IMPORTANCE TO THE ORGANISM 2) THE PHYSICAL AND CHEMICAL STATE OF THE ELEMENT AND ITS POTENTIAL; ACCEPTABILITY TO THE SPECIFIC ORGANISM 3) THE CONCENTRATION OF THE ELEMENT IN THE ENVIRONMENT AND THE PRESENCE OF OTHER ELEMENTS THAT MAY INHIBIT OR ENHANCE ITS UPTAKE 4) THE MORPHOLOGY OF THE ORGANISM, ITS LIFE HISTORY, ITS CONDITION AND AGE, AND ITS PARTICULAR ROLE IN THE FOOD WEB AND 5) THE PHYSICAL AND CHEMICAL CHARACTERISTICS OF THE ENVIRONMENT.

Aquatic toxicity:

Freshwater toxicity text (Conc. in ppm):

Conc.	Expos (Hr)	Specie	Effect	Test Environment
8000		ALGAE	TLM	
25000		ALGAE	100%	
			MORTAL	
			ITY	
10000		PROTOZOA	TLM	
18000		PROTOZOA	100%	
			MORTAL	
			ITY	
5000		MOLLUSKS	TLM	
10000		MOLLUSKS	100%	
			MORTAL	
			ITY	
500		CRUSTACEA	TLM	
5000		CRUSTACEA	100%	
			MORTAL	
			ITY	
600		FISH	TLM	
2500	1344	RAINBOW TROUT	ALL	
			KILLED	

Toxicity to animals:

Animal toxicity text (Value in mg of material/kg body wt):

Value	Time	Species	Param.	Route
1400	10	DOG	LD50	
	R/DAY			
	6			
	DAY/W			
	EEK			
3500	10	RAT	LD50	
	R/DAY			
	6			
	DAY/W			
	EEK			
4400	8.8	MUS	LD50	
	R/DAY			
2300	8.8	GPG	LD50	
	R/DAY			

Livestock toxicity (ppm): 200

RANGE OF TOXICITY

Inhalation limit: 2.E-13

Inhalation limit text: (UC/CC)

Irritation levels: .00004

Irrigation levels text: UC/CC

Direct contact: REFER TO SPECIFIC COMPOUND

Direct human ingestion (mg/kgwt): 2280

Drinking water limits (ppm): .000004 .000004

HUMAN HEALTH HAZARDS

Acute hazard level: SOLUBLE: ORGAN OF REFERENCE MAXIMUM PERMISSIBLE 40 HOUR WEEK BURDEN IN TOTAL UCI/CM3 BODY(9), UCI MPC AIR, MPC WATER KIDNEY / .1 / 6.E-12/ 1.E-4 BONE / .05 / 6.E-12/1.E-4 LIVER / .4 / 9.E-12/2.E-4 TOTAL BODY / .3 / 2.E-11/2.E-4 GASTROINTESTINAL TRACT/ 0 / 2.E-7/ 8.E-4 INSOLUBLE: ORGAN OF REFERENCE MPC/W MPC/A LUNG / /10-10 GASTROINTESTINAL TRACT/ 8.E-4 /10-7

Public health hazard: HIGH, DUE TO EXPOSURE TO RADIATION

Action levels: NOTIFY LOCAL AIR AUTHORITIES AND THE NUCLEAR REGULATORY COMMISSION. DO NOT ENTER AREA WITHOUT RADIATION MONITORING EQUIPMENT.
Carcinogenicity: IONIZING RADIATION HAS THE POTENTIAL FOR BEING CARCINOGENIC.
Mutagenicity: EXPOSURE OF SEX CELLS TO IONIZING RADIATION CAN CAUSE GENE MUTATIONS TO OCCUR IN EXCESS OF THE SPONTANEOUS MUTATION RATE.
POTENTIAL.

Teratogenicity: DEVELOPMENTAL DEFECTS HAVE BEEN OBSERVED IN EXPERIMENTAL ANIMALS EXPOSED TO IONIZING RADIATION. POTENTIAL.

CLEANUP PROCEDURES

In situ amelioration: 1. CATION EXCHANGE RESIN 2. LIME TREATMENT PLUS COAGULANT. SEEK PROFESSIONAL ENVIRONMENTAL ENGINEERING ASSISTANCE THROUGH EPA'S ENVIRONMENTAL RESPONSE TEAM (ERT), EDISON, NJ, 24-HOUR NO. 201-321-6660.

Beach/shore restoration: REMOVE THE SAND AND BURY AT AUTHORIZED BURIAL SITE.

Countermeasure material availability: CATION EXCHANGE RESIN - WATER SOFTENING AND CONDITIONING SUPPLIERS, WATER TREATMENT PLANTS; LIME - CEMENT PLANTS; COAGULANTS SUCH AS ALUMINUM SULFATE OR FERRIC SULFATE - WATER TREATMENT PLANTS

Disposal method(s): BURIAL AT AN AUTHORIZED RADIOACTIVE DISPOSAL SITE

Disposal notification(s): CONTACT THE NUCLEAR REGULATORY COMMISSION.

DATA ADEQUACY EVALUATION

GOOD

Attachment 2

**Oil and Hazardous
Materials/Technical Assistance Data
System**

Beryllium

BERYLLIUM

CHRIS - Chemical Hazard Response Information System

Developed by the United States Coast Guard. 1985-2000.

Document Outline

- 0. OVERVIEW
- 1. CORRECTIVE RESPONSE ACTIONS
- 2. CHEMICAL DESIGNATIONS
- 3. HEALTH HAZARDS
- 4. FIRE HAZARDS
- 5. CHEMICAL REACTIVITY
- 6. WATER POLLUTION
- 7. SHIPPING INFORMATION
- 8. HAZARD CLASSIFICATIONS
- 9. PHYSICAL AND CHEMICAL PROPERTIES

0. OVERVIEW

Material name

BERYLLIUM
CHRIS Code BEM

Characteristics

Solid Silver color Odorless
Sinks in water.

Emergency Actions

Restrict access.
AVOID CONTACT WITH SOLID AND DUST,
Wear dust respirator and rubber overclothing (including gloves).
Shut off ignition sources and call fire department.
Notify local health and pollution control agencies.
Protect water intakes.

Fire

Combustible.
POISONOUS GASES MAY BE PRODUCED IN FIRE.
Dust cloud may explode if ignited in an enclosed area.
Wear goggles and self-contained breathing apparatus.
Extinguish with dry graphite, soda ash, or other inert powder.
DO NOT USE WATER ON FIRE.

Exposure

CALL FOR MEDICAL AID.

DUST

POISONOUS IF INHALED OR IF SKIN IS EXPOSED.

If inhaled will cause coughing or difficult breathing.

If in eyes, hold eyelids open and flush with plenty of water.

If breathing has stopped, give artificial respiration.

If breathing is difficult, give oxygen.

SOLID

POISONOUS IF SWALLOWED OR IF SKIN IS EXPOSED.

Remove contaminated clothing and shoes.

Flush affected areas with plenty of water.

IF IN EYES, hold eyelids open and flush with plenty of water.

IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting.

IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

Water Pollution - General

Effect of low concentrations on aquatic life is unknown.

May be dangerous if it enters water intakes.

Notify local health and wildlife officials.

Notify operators of nearby water intakes.

1. CORRECTIVE RESPONSE ACTIONS

Stop discharge

Collection Systems: Dredge

2. CHEMICAL DESIGNATIONS

CG Compatibility Group: Not listed.

Formula: Be

IMO/UN Designation: 6.1/1567

DOT ID Number: 1567

CAS Registry Number: 7440-41-7

NAERG Guide Number: 134

Standard Industrial Trade Classification: 52229

3. HEALTH HAZARDS

Personal Protective Equipment: Self contained positive pressure breathing apparatus; clean work clothes daily; gloves; eye protection

Symptoms Following Exposure: Any dramatic, unexplained weight loss should be considered as possible first indication of beryllium disease. Dust is extremely toxic when inhaled; symptoms include coughing, shortness of breath, and acute or chronic lung disease. There is no record of illness from ingestion of beryllium. Contact with dust causes conjunctival inflammation of eyes and dermatitis.

Treatment of Exposure: INHALATION: acute disease may require hospitalization with administration of oxygen; chest x-ray should be taken immediately. EYES: flush with water for at least 15 min. SKIN: flush with water; wash with soap and water; all cuts, scratches or other injuries should receive prompt medical attention.

TLV-TWA: 0.002 mg/m³

TLV-STEL: 0.01 mg/m³

TLV-Ceiling: Not listed.

Toxicity by Ingestion: Grade 3; oral LD⁵⁰ = 100 mg/kg (mouse)

Toxicity by Inhalation: Currently not available.

Chronic Toxicity: Berylliosis of lungs may occur from 3 months to 15 years after exposure. Chronic systemic diseases of the liver, spleen, lymph nodes, bone, kidney, and other organs may also occur.

Vapor (Gas) Irritant Characteristics: Currently not available

Liquid or Solid Irritant Characteristics: Currently not available

Odor Threshold: Odorless

IDLH Value: 4 mg/m³

OSHA PEL-TWA: 0.002 mg/m³

OSHA PEL-STEL: 0.025 mg/m³ 30 minute peak per 8 hour shift.

OSHA PEL Ceiling: 0.005 mg/m³

EPA AEGL: Not listed.

4. FIRE HAZARDS

Flash Point: Not pertinent

Flammable Limits in Air: Not pertinent

Fire Extinguishing Agents: Graphite, sand, or any other inert dry powder

Fire Extinguishing Agents NOT to Be Used: Water, CO₂, or halogenated extinguishing agents.

Special Hazards of Combustion Products: Combustion yields beryllium oxide fume, which is toxic if inhaled.

Behavior in Fire: Powder may form explosive mixture with air.

Ignition Temperature: Not pertinent

Electrical Hazard: Not pertinent

Burning Rate: Not pertinent

Adiabatic Flame Temperature: Currently not available

Stoichiometric Air to Fuel Ratio: 2.4 (calc.)

Flame Temperature: Currently not available

Combustion Molar Ratio (Reactant to Product): 1.0 (calc.)

5. CHEMICAL REACTIVITY

Reactivity with Water: No reaction

Reactivity with Common Materials: Reacts with acids and alkalis to form hydrogen gas.

Stability During Transport: Stable

Neutralizing Agents for Acids and Caustics: Not pertinent

Polymerization: Not pertinent

Inhibitor of Polymerization: Not pertinent

6. WATER POLLUTION

Aquatic Toxicity: Currently not available

Waterfowl Toxicity: Currently not available

Biological Oxygen Demand (BOD): Currently not available

Food Chain Concentration Potential: Currently not available

GESAMP Hazard Profile:

Bioaccumulation: 0

Damage to living resources: 2

Human oral hazard: 2

Human contact hazard: II

Reduction of amenities: XXX

7. SHIPPING INFORMATION

Grades of Purity: Grade AA, 99.96+%; Grade A, 99.87+%; Nuclear grade

Storage Temperature: Ambient

Inert Atmosphere: No requirement
Venting: Open
IMO Pollution Category: Currently not available
Ship Type: Currently not available
Barge Hull Type: Currently not available

8. HAZARD CLASSIFICATIONS

49 CFR Category: Poison
49 CFR Class: 6.1
49 CFR Package Group: II
Marine Pollutant: No
NFPA Hazard Classification: 4 1 0
EPA Reportable Quantity: 10 pounds
EPA Pollution Category: A
RCRA Waste Number: P015
EPA FWPCA List: Not listed

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State at 15 Degrees C and 1 ATM: Solid
Molecular Weight: 9.01
Boiling Point at 1 ATM: Not pertinent
Freezing Point: Not pertinent
Critical Temperature: Not pertinent
Critical Pressure: Not pertinent
Specific Gravity: 1.85 at 20°C (solid)
Liquid Surface Tension (Est.): Not pertinent
Liquid Water Interfacial Tension: Not pertinent
Vapor (Gas) Specific Gravity: Not pertinent
Ratio of Specific Heats of Vapor (Gas): Not pertinent
Latent Heat of Vaporization: Not pertinent
Heat of Combustion: -28,000 Btu/lb = -15,560 cal/g = -652 X 10⁵ J/kg
Heat of Decomposition: Not pertinent
Heat of Solution: Not pertinent
Heat of Polymerization: Not pertinent
Heat of Fusion: 260.0 cal/g
Limiting Value: Currently not available
REID Vapor Pressure: Currently not available

Attachment 3

**Texas Natural Resource
Conservation Commission**

Letter Requesting Assistance

**TNRCC**Protecting Texas
by Reducing and
Preventing Pollution

FAX TRANSMITTAL

DATE: 4/25/2000 NUMBER OF PAGES (including this cover sheet):17

TO: Name Charlie Gazda and Ragan Broyles
Organization EPA Region 6
Emergency Response Branch
FAX Number (214) 665-7447

FROM: TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
Name David L. Davis
Division/Region TNRCC Remediation Division
Telephone Number (512) 239-2453
FAX Number (512) 239-4814

NOTES:

RE: LITTLE BIT WIRELINE
715 SUNNYSIDE DRIVE
BEAUMONT, TEXAS 77707
TXD NONE
TEXAS DEPARTMENT OF HEALTH REGISTRATION NO. L03168
TEXAS DEPARTMENT OF HEALTH INCIDENT # 6919

The Little Bit Wireline incident consists of two sites of Americium-241 contamination that resulted from a ruptured well logging source. Approximately 3 Curies of Americium-241 was in the source when it ruptured. The well logging source was ruptured on September 19, 1995 at the Evans Unit "A" # 1 well of the North Winnie Oil Field, near Winnie, Chambers County, Texas. Contamination by Americium-241 was subsequently detected at Little Bit Wireline's shop, 715 Sunnyside Drive, Beaumont, Jefferson County, Texas.

The TNRCC feels that these conditions pose an imminent and substantial threat to human health and the environment. The TNRCC requests that the EPA ERB assessment and removal declaration of EPA's intention to respond to this incident as soon as possible.

CC. Jacqueline S. Hardee, P.E., TNRCC
Glenda Champagne, TNRCC
Wesley Newberry, TNRCC
Robert Free, TDH BRC

LITTLE BIT WIRELINE
715 SUNNYSIDE DRIVE
BEAUMONT, TEXAS 77707

TXD NONE

TEXAS DEPARTMENT OF HEALTH REGISTRATION NO. L03168

TEXAS DEPARTMENT OF HEALTH INCIDENT # 6919

Site Locations:

The Little Bit Wireline incident consists of two sites of Americium-241 contamination that resulted from a ruptured well logging source. The well logging source was ruptured on September 19, 1995 at the Evans Unit "A" # 1 well of the North Winnie Oil Field, near Winnie, Chambers County, Texas. Contamination by Americium-241 was subsequently detected at Little Bit Wireline's shop, 715 Sunnyside Drive, Beaumont, Jefferson County, Texas.

Description of the Incident and Site Conditions:

On August 11, 1995 an approximately 3 Curie Americium-241 well logging source became stuck down the Evans Unit "A" # 1 well of the North Winnie Oil field, near Winnie, Chambers County, Texas. Attempts to recover the source were unsuccessful until September 19, 1995 when the source was discovered to be leaking. Instrument readings taken at that time indicated one millirem per hour. Equipment at the site was washed but had to remain at the site due to radiation readings over regulatory limits. However, one contaminated mud pump was allowed to leave the site. A radiation survey of Little Bit Wireline's shop was performed and indicated that it was contaminated. On October 19, 1995 the U.S. Department of Energy recovered the Americium-241 source and transported it to their Los Alamos facility on October 20, 1995. Later radiation surveys by NSSI indicated high Americium-241 in bovine fecal material on the unsecured site.

A time line of relevant events of this incident, NSSI's radiation survey of Little Bit Wireline's shop and other relevant information is attached with this fax transmittal.

TNRCC Removal Recommendations:

1. Assess both the well site and Little Bit Wireline's shop for radioactive contamination;
2. Evaluate existing structures at each facility to determine if decontamination and/or demolition is appropriate.

Response Question:

Will the EPA ERB assess the sites listed above for the response actions?